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(12) **United States Patent**
Wang

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(54) **DEPLOYABLE KEY MOUSE**

(56) **References Cited**

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U.S. PATENT DOCUMENTS

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4,072,840 A * 2/1978 Daigle H01H 9/08

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2004/0190239 A1 * 9/2004 Weng G06F 1/1616

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361/679.2

2009/0295733 A1 * 12/2009 Stenbroten G06F 3/0219

345/168

2010/0245250 A1 * 9/2010 Linegar G06F 3/0216

345/168

2020/0218362 A1 * 7/2020 Madsen G06F 3/0202

* cited by examiner

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(57) **ABSTRACT**

(51) **Int. Cl.**
G06F 3/02 (2006.01)

A computer input device can include a housing, a set of key switch mechanisms positioned in the housing, and a removable key structure that is operable between a first configuration positioned in the housing and a second configuration detached from the housing. The removable key can have a position sensor, wherein in the first configuration, the removable key structure is operable to provide a key-based typing input, and, in the second configuration, the removable key structure is operable as a computer pointing device using the position sensor. The removable key structure can therefore allow comfortable, portable, and precise pointer input for a computer input system.

(52) **U.S. Cl.**
CPC **G06F 3/0216** (2013.01); **G06F 3/0219** (2013.01)

(58) **Field of Classification Search**
CPC G06F 3/0216; G06F 3/0219
See application file for complete search history.

21 Claims, 10 Drawing Sheets

